WHAT IS CLAIMED:

1. A process of collecting pigment nanoparticles comprising forming a vapor of a pigment that is solid at room temperature, the vapor of the pigment being provided in an inert gaseous carrying medium, solidifying at least some of the pigment within the gaseous stream, moving the pigment nanoparticles in a gaseous carrying environment through a dry mechanical pumping system, and while the particles are within the dry mechanical pumping system or after the nanoparticles have moved through the dry pumping system, contacting the pigment nanoparticles with an inert liquid collecting medium.

2. The process of claim 1 wherein the pigment nanoparticles comprise an inorganic pigment.

3. The process of claim 1 wherein the pigment nanoparticles comprise an organic pigment.

4. The process of claim 2 wherein the inert liquid collecting comprises an organic liquid.

5. The process of claim 3 wherein the inert liquid collecting comprises an organic liquid.

6. The process of claim 2 wherein pigment particles within the dry mechanical pumping system are contacted with an inert liquid collecting medium.

7. The process of claim 3 wherein pigment particles within the dry mechanical pumping system are contacted with an inert liquid collecting medium.

8. The process of claim 2 wherein pigment particles are contacted with an inert liquid collecting medium after leaving the dry mechanical pumping system.

9. The process of claim 3 wherein pigment particles are contacted with an inert liquid collecting medium after leaving the dry mechanical pumping system.

10. The process of claim 10 wherein the nanoparticles are collected by physical filtration.

11. The process of claim 11 wherein a vacuum system is installed to provide additional driving force to collect nanoparticles by physical filtration.

12. An apparatus for providing dispersions of ultrafine pigment particles having an average size of between 0.5 and 100 nanometers comprising:

a) a source of vaporized pigments connected to a mechanical pump and a collection vessel, the source of vaporized pigments providing an stream of non-reactive gas flow away from the source and towards a mechanical pump;

b) a source of organic pigment, inorganic pigment and/or pigment precursor into the source of vaporized pigment;

c) a source of non-reactive gas to carry pigment material towards the mechanical pump;

d) a fluid source for a fluid to collect pigment particles and/or condense pigment vapor into particles;

e) a mechanical pump for moving the non-reactive gas with pigment material and the fluid to collect pigment particles and/or condense pigment vapor into particles; and

f) a contact zone for the i) non-reactive gas and pigment material and ii) the fluid to collect pigment particles and/or condense pigment vapor into particles;

wherein the contact zone is within the mechanical pump or after the mechanical pump.

13. The apparatus of claim 13 having a source of pigment precursor and a source for a reactive gas stream to effect reaction of pigment precursor particles, to provide pigment particles.

14. The apparatus of claim 14 wherein the fluid is introduced into the mechanical pump to first contact the non-reactive gas with pigment material.

15. The apparatus of claim 15 wherein the non-reactive gas is removed from the mechanical pump after pigment material content in the gas has been reduced by contact with the fluid.

16. The apparatus of claim 16 wherein a liquid recycling system to return liquid into the mechanical pump is provided so that recycled liquid with particulate pigment content comprises the recycled liquid.

17. The apparatus of claim 16 wherein the source of liquid provides an organic liquid to the mechanical pump.